

[illegible]

TITLE: MOBILE SIGNAL RELAY FOR CELLULAR TRANSMISSION IN REMOTE AREAS

INVENTOR: KELAN C. SILVESTER

Date: OCTOBER 9, 2001

MOBILE SIGNAL RELAY FOR CELLULAR TRANSMISSION IN REMOTE

AREAS

Background

5 This invention relates generally to cellular
communication systems and, particularly, to the use of
cellular repeaters.

10 In a number of circumstances, cellular telephone users
are frustrated by the lack of cellular telephone service.
For example, when traveling along highways, the user may
experience dropped calls because the user moves out of
range of a sufficiently proximate cellular tower. In
addition, in so-called pocket areas, users may experience
the absence of cellular service because buildings or other
geographical obstacles, such as mountains or valleys, mask
15 communications with proximate towers.

20 Of course, one obvious solution is to increase the
number of cellular towers. However, this approach comes
with a number of disadvantages. The cellular towers and
their maintenance may be expensive. In addition, many
communities object to the presence of what are considered
to be unsightly cellular towers.

Thus, it would be desirable to extend cellular service
without increasing the number of cellular towers.

Brief Description of the Drawings

Figure 1 is a schematic depiction of one embodiment of the present invention; and

Figure 2 is a block diagram in accordance with one
5 embodiment of the present invention.

Detailed Description

Referring to Figure 1, a cellular user traveling in an automobile 16 may attempt to place a cellular phone call. However, in the illustrated example, the vehicle 16 is too far from the most proximate cellular tower 10 to establish
10 communications. However, an intermediate vehicle 12, including a cellular repeater coupled to an antenna 14, is available. Thus, the outgoing transmission from the vehicle 16 may be received by the vehicle 12 and
15 automatically retransmitted to the tower 10. Because the vehicle 12 is in range of the tower 10, the cellular call may be completed. The operator of the vehicle 12 may have no idea that his vehicle and its repeater is being used to forward a telephone call and may have no knowledge or
20 access to the communication between the vehicle 16 and the tower 10.

If a large number of vehicles traveling on roads and highways are equipped with cellular repeaters, the range of existing cellular telephone systems may be extended. This
25 may be accomplished without the need to increase the number of cellular towers. In effect then, each such vehicle

Thus, the repeater is advantageously simply a signal repeater.

Referring to Figure 2, a cellular repeater may include a pair of antennas 14a and 14b. Advantageously, the
5 antennas 14a and 14b may be well isolated from one another. The antenna 14a may receive signals that are passed through the duplexer 22a, the isolator 24b, and an amplifier 26b, and then passed out through the duplexer 22b and through the antenna 14b. Similarly, incoming signals received by
10 the antenna 14 may be passed through the isolator 24a and amplifier 26a before proceeding outwardly through the antenna 14a via the duplexer 22a. The isolators 24a and 24b may provide filtering in some embodiments. The
15 isolators 22 and the amplifiers 26 may be coupled, as indicated, to the vehicle's existing battery power supply.

While the present invention has been described with respect to a limited number of embodiments, those skilled in the art will appreciate numerous modifications and variations therefrom. It is intended that the appended
20 claims cover all such modifications and variations as fall within the true spirit and scope of this present invention.

What is claimed is: